Claims

[c1] A method for fabricating a rotor cup, said method comprising the step of stamping the rotor cup frame and forming an annular flange surrounding an opening of the rotor cup.

[c2] A method in accordance with Claim 1 wherein said method of fabricating a rotor cup further comprises the step of machining the rotor cup to reduce vibration in the rotor cup.

[c3] A method in accordance with Claim 2 wherein said method of machining the rotor cup further comprises the step of machining the annular flange to facilitate a desired level of rotor balance.

[c4] A method in accordance with Claim 1 wherein said method of fabricating a rotor cup further comprises the step of connecting a plurality of weights to the annular flange to facilitate a desired level of rotor balance.

[c5] A rotor cup assembly for an electric motor, said rotor cup assembly comprising a housing comprising a top, a bottom, a sidewall extending circumferentially from said top and having a first diameter, said sidewall and said top defining a cavity, and an annular flange extending circumferentially from said sidewall and having a first diameter, a second diameter, and a first thickness, said first diameter less than said second diameter.

[c6] A rotor cup assembly in accordance with Claim 5 wherein said annular flange configured to have an edge, said edge outwardly flared from said sidewall by an angle ϕ .

[c7] A rotor cup assembly in accordance with Claim 5 wherein said annular flange configured to receive a plurality of weights to facilitate a desired level of rotor balance.

[c8] A rotor cup assembly in accordance with Claim 5 wherein said annular flange machined to remove material from said annular flange such that said annular flange configured to achieve a desired level of rotor balance.

[c9] A rotor cup assembly in accordance with Claim 5 wherein said annular flange second diameter greater than said housing sidewall first diameter.

[c10] A rotor cup assembly in accordance with Claim 5 wherein said annular flange provides a smooth surface for pressing an item into said rotor cup.

[c11] An electric motor comprising a stator including a stator core having a winding thereon, a rotor positioned at least partially around said stator, a rotor shaft positioned at least partially within said rotor, and a rotor cup, said rotor shaft extending through said rotor cup, said rotor cup comprising: a housing comprising a top, a bottom, a sidewall, and an annular flange, said sidewall extending circumferentially from said top and having a first diameter, said annular flange extending circumferentially from said sidewall and having a first diameter, a second diameter, and a first thickness, said first diameter less than said second diameter.

[c12] An electric motor in accordance with Claim 11 wherein said rotor cup top including an opening sized to accept said rotor shaft.

[c13] An electric motor in accordance with Claim 11 wherein said rotor cup configured to receive a plurality of weights to facilitate a desired level of rotor balance.

[c14] An electric motor in accordance with Claim 11 wherein said annular flange configured to be machined to remove material from said annular flange such that said annular flange achieves a desired level of rotor balance.

[c15] An electric motor in accordance with Claim 11 wherein said annular flange second diameter greater than said housing sidewall first diameter.

[c16] An electric motor in accordance with Claim 11 wherein said electric motor comprising an inside-out motor comprising an external rotor having magnetic elements mounted on said rotor and said stator located inside the magnetic elements.